

In re Application of: Eshel BEN-JACOB et al.
Serial No.: 10/534,127
Filed: November 18, 2005
Office Action Mailing Date: December 3, 2008

Examiner: Lee S. COHEN
Group Art Unit: 3739
Attorney Docket: 29752

REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 369-378, 380-383, 385-397, 399-414 and 416-430 are in this Application. Claims 384, 398, 401-409, 415 and 418-429 have been withdrawn from consideration. Claims 369-380, 385-397, 399, 400, 410-414, 416 and 417 have been rejected. Claims 381-383 have been objected to. Claims 369, 375-377, 380-382, 386, 387, 390, 397, 399, 401, 410 and 418 have been amended herewith. Claims 1-368 have been canceled at the time of filing the present Application, claims 379, 384, 398 and 415 have been canceled herewith. New claim 430 has been added herewith.

35 U.S.C. §112 Rejections

The Examiner rejects claims 375-377 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Examiner states that these claims are vague as they fail to add any structure capable of accomplishing the intended use.

While traversing the Examiner 112 rejection, Applicants, in order to expedite prosecution have amended the wording of claims 375-377 so as to explicitly claim (that which has previous claimed implicitly) that the substrate is attachable to the organ (claims 375 and 376) or implantable in an animal (claim 377). Support for this amendment is found in the passage bridging page 31 line 31 and page 32 line 10 of the specification.

It is submitted that claims 375-377 particularly point out and distinctly claim the embodiments in which the device is locatable on an organ or implantable in an animal.

35 U.S.C. §102 Rejections

The Examiner rejects claims 369-380, 385-397, 399, 400, 410-414, 416 and 417 under 35 U.S.C. §102(e) as being anticipated by Huang et al. (US Patent

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Application Publication No. 2004/0146849). The Examiner states that Huang *et al.* discloses a biochip for positioning and sensing signals from a single cell, and directs Applicants' attention to Figures 2, 3, 6, 16, and 40 and paragraphs [0005], [0009], [0026], [0146], [0187], [0188], [0299], [0326-0328], [0455] and [0456].

The Examiner's rejection is respectfully traversed. Independent claims 369 and 410 have been amended herewith. New independent claim 430 has been added herewith.

The following remarks relate primarily to the independent claims. The dependent claims are patentable at least by virtue of their dependency on their parent claims. While not all the dependent claims are separately argued in order to simplify the response, Applicants submit that at least some of the dependent claims add patentable subject matter.

Claims 369 and 410 have been amended to include the allowable subject matter found in claim 381.

Claim 369 is directed to a device for positioning at least one cell in at least one addressable position. The device comprises a substrate formed with at least one addressable pore and at least one channel embedded in the substrate and being in fluid communication with the pore(s). The device also comprises electrode structure(s) positioned in the pore(s) and protruding from a surface of the substrate. An under-pressure formed in the channel(s) results in vacuum adherence of the cell(s) onto the pores, such that a single cell is vacuum adhered onto a single pore.

Claim 410 is a method claim corresponding to device claim 369. Claim 410 includes all the limitations of claim 369.

The subject matter of new claim 430 finds support in previously presented claims 369 and 381. New independent claim 430 is directed to a device for positioning at least one cell in at least one addressable position. The device comprises a substrate formed with at least one addressable pore and at least one channel embedded in the substrate and being in fluid communication with the pore(s). The device also comprises electrode structure(s) emerging from base(s) of the pore(s).

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Huang discloses a biochip which includes particle positioning means and ion transport measuring means. Huang discloses various types of positioning means including dielectric structures, electrode structures, traveling wave dielectrophoresis structures, electromagnetic structures, acoustic structures and negative pressure structures. Huang also discloses various types of ion transport measuring means, including holes, apertures, capillaries and needles.

Huang, however, is silent with respect to an electrode structure which is positioned in a pore and protrudes from a surface of the substrate. Thus, Huang fails to anticipate independent claims 369 and 410.

Huang is also silent with respect to an electrode structure for sensing intracellular potentials or electrode structure which penetrates the cell, hence fails to anticipate dependent claims 386 and 414.

Huang is also silent with respect to an electrode structure emerging from a base of the pore, hence fails to anticipate claim 430. It is emphasized that Huang's core embodiment is a biochip in which the holes do not have a base (so called "through and through holes"), see *e.g.*, FIGs. 1-3 and 5-10. As will be appreciated by the Examiner, this configuration cannot anticipate claim 430 since there is no base to support the electrode. It is noted that Huang discloses needle electrodes which are located near the holes, but not in the holes. It is further noted that Huang also contemplates a configuration in which the biochip has wells (see FIG. 11). However, no electrodes emerge from the base of the wells.

Rejoinder

Withdrawn claims 401 and 418 have been amended to include the allowable subject matter found in claim 381. It is noted that each of claims 401 and 418 include all the limitations of allowable claims 369 and 410. A rejoinder of claims 401 and 418 and their dependent claims in accordance with 37 C.F.R. §1.104 is respectfully requested once claims 369, 410 and 430 are allowed.

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In view of the above amendments and remarks it is respectfully submitted that the claims are now in condition for allowance. A prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,



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Enclosure:

- Additional Claims Transmittal Fee